The Evolution of the Payments System: A U.S. Perspective

By Thomas M. Hoenig

It is a pleasure and an honor to be asked to participate in this forum on the future of our payments system. As you know, some years ago conferences on payments system topics were highly technical and devoted to esoteric discussions designed primarily for specialists. More recently these conferences have tended to focus on discussions of payments system risk. While these topics are extremely important, they fall somewhat short of giving us the *big picture* of how the payments system is likely to change as we move toward a cashless/paperless society. Thus, I believe it is particularly appropriate that this conference has chosen the topic *The Future of Money—The Money of the Future* to address these broader issues.

This afternoon, we examined payments system issues from a European perspective. My task this evening is to provide a counterpoint to this discussion by examining recent and prospective changes in the U.S. payments system. The theme of my remarks is that the rate at which a payments system develops depends largely on a struggle between rapid technological change and natural barriers to new product acceptance. This ongoing conflict explains why we have seen revolutionary developments in large-dollar payments in the United States, but only evolutionary developments in small-dollar and retail means of payment.

In developing this theme, my remarks tonight will be structured around four topics. First, I will highlight recent trends in the U.S. payments system. Second, I will discuss why progress has been so slow in small-dollar and retail payments by examining some of the barriers that have limited payments system progress. Third, I will present my thoughts on how the U.S. system is likely to evolve over time. And finally, I will identify the types of public policy issues that we are likely to encounter as we move toward a world of electronic money.

RECENT TRENDS IN THE UNITED STATES

Let me begin by focusing on the striking contrast between the pace of development in large and small-dollar payments systems. In recent years, the United States has made noteworthy progress in the development of its large-dollar payments system. Indeed, almost all large-value payments in

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financial or foreign exchange transactions are now made electronically via Fedwire or CHIPS. However, small-dollar payments by consumers and firms continue to be made largely by cash and check. This difference is most apparent when we look at the value versus the volume of paper-based and electronic payments. Based on value, almost 90 percent of all payments in the United States are now made electronically. Based on the volume of transactions, however, over 90 percent of all transactions are still made by cash or check.

For small-dollar payments, the use of electronic payments in the United States has generally been limited to three areas: credit cards, ATM transactions, and ACH or direct debit transactions. In contrast, consumers have been reluctant to accept debit cards, and business-to-business payments continue to be done by check rather than electronically.

For the American consumer, credit cards have become the most frequently used alternative to cash or checks, representing about 16 percent of retail purchases. As you may know, credit cards in the United States combine both credit and delayed-payment features. About half of credit card users pay off their balance within the month. Under the terms of standard credit card agreements in the United States, these so-called "convenience" users pay no interest charges. For these consumers, a credit card is an alternative to cash or checks for retail purchases. The other half of users do not pay off their entire balance and so employ the card as a line of credit. Credit card use has accelerated sharply in the last few years as competition between banks and nonbank card issuers has eliminated annual fees for most cards and has resulted in incentive programs based on card usage.

A second success story is the ATM machine. Used by consumers primarily as a cash dispenser, there has been continued growth both in the number of ATM machines and in ATM usage. This growth can be attributed to a number of factors, including increasing acceptance by consumers and the placement of machines in more convenient locations away from banks, such as grocery stores and convenience stores.

ACH has also experienced strong growth. Initially, most ACH transactions were originated by the government for payments to households and vendors. In recent years, though, corporations have increasingly used ACH for direct deposit of payroll and for payment of taxes. There has also been substantial growth in consumers' use of ACH for direct debit to make recurring payments to utilities and financial institutions. The one important area in which ACH has not been particularly successful is in business-to-business payments, which continue to be made largely by check.

In contrast to the success of these three products, the United States has made relatively little progress in other retail areas. One product in which the pace of development has consistently fallen short of expectations is the debit card. In the United States, there are three competing technologies for debit cards. The most widely used is the ATM card, modified for point of sale. While growth has increased sharply in the last few years, ATM-debit is still largely confined to specific geographic locations and certain types of merchants. The second type of debit card, the magnetic-strip, stored-value card has seen very limited acceptance. It is used primarily in local transportation systems and as a prepaid telephone card. The third technology, the *chip* card or *smart* card, while currently a hot topic in the U.S. financial and trade press, is still in the experimental, pilot-project stage.

Progress has also been very slow in converting business-to-business payments from check to electronic form. Currently, it is estimated that only about 1 percent of corporate trade payments in the United States is made electronically.

BARRIERS TO PAYMENTS SYSTEM PROGRESS

Clearly, in the United States, we have made only limited progress in converting small-dollar payments to electronic form. But what explains this slow pace of progress relative to the success of large-dollar systems? Let me take a moment to offer a simple framework for thinking about this issue. In my opinion, payment systems are a classic example of an irresistible force meeting an immovable object. In this case, new payments technologies are the driving force promoting change. Standing in the way, however, are four natural barriers that must be overcome before these new technologies can be implemented.

The first barrier is the cost of implementing a new technology. While a technological breakthrough may open up new payments system possibilities, it generally takes time to become cost-effective. For example, although the widespread adoption of check-imaging could improve the efficiency of the U.S. payments system, such imaging systems are expensive, and there is a natural reluctance to incur these costs.

A second barrier is the problem of achieving technical standardization. When there are multiple technical platforms and a large number of payments system participants, it may be extremely difficult to achieve the coordination necessary to obtain a common set of standards. And, until standardization is reached, there may be only a limited market for a particular product.

A third barrier is the pricing of new payment products. This is a particular problem in the United States because of inefficiencies in the pricing of existing means of payment. Traditionally, banks have not charged consumers directly for payments services. Thus, for most consumers, the use of a particular means of payment is typically based on convenience rather than cost. This pricing structure makes it extremely difficult to introduce a new product such as a debit card. If a bank charges the consumer for debit transactions to cover its operating costs, the consumer is unlikely to use the debit card when cash and check transactions are seen as free because their costs are bundled with other bank services. Even if debit card transactions are not priced, the consumer still has no real cost incentive to switch to debit.

The fourth barrier to the development of new payment products is consumer acceptance. As an economist, I believe consumers act rationally in response to economic incentives, and so they should be receptive to more efficient payment methods. As a consumer, though, I must admit to some reluctance to adopt a new product without being confident that it is easy and convenient to use. Hence, marketing and consumer education may be necessary to overcome this natural reluctance of consumers to change and the use of new payment products.

The existence of these four barriers, I believe, provides an explanation for the different pace of development in large and small-dollar systems. While all new payment products have to overcome these barriers to achieve widespread acceptance, I would argue that these barriers are more easily conquered for large-dollar systems, for two reasons. First, large-dollar systems generally have fewer participants, so problems of coordination are much less severe. As a result, it is easier to reach agreement on common standards. It is also easier to achieve economies of scale in operating a new technology. Second, and more importantly, the central bank is an important participant in large-dollar systems either as a regulator or as a provider of payments services. Thus, in large-dollar systems the central bank can play a leadership role in fashioning agreements among private sector participants on standards and pricing that can accelerate the adoption of new technologies.

For small-dollar systems, in contrast, there are generally many more participants, making coordination and standardization more difficult. This is a

particular problem in the United States because of our geography and because of the sheer size of our banking system. In addition, the central bank's role in small-dollar systems is more indirect so that it is more difficult for the central bank to act as a catalyst for payments system progress. As a result of these differences, the pace of new product adoption tends to be considerably slower for small-dollar systems.

THE OUTLOOK FOR THE U.S. PAYMENTS SYSTEM

Let me now use this framework to speculate on how the U.S. payments system is likely to evolve in coming years. In doing so, it is useful to distinguish three time horizons: a short-term horizon (five years), a medium-term horizon (five to ten years), and a long-term horizon (10 to 20 years).

In the short term, I think that we are likely to see two significant developments in the United States. First, there is currently an effort under way within both the banking system and the Federal Reserve System to improve the efficiency of the check system by installing imaging equipment. While check imaging will not reduce the number of checks written by consumers and business, it is likely to lead to a significant reduction in the handling costs of the current, paper-based system. In addition, by accelerating the check clearing process, imaging will reduce bank losses on returned checks. Thus, I feel that imaging is an important step forward as we move slowly from a paper to an electronic payments system for small-dollar transactions.

Beyond imaging, I think that we will also begin to see the gradual replacement of the retail use of checks by credit cards and debit cards. As I mentioned earlier, consumers currently have considerable incentive to use a credit card because of the promotional subsidies for credit card use. By using a credit card rather than a check, a consumer can accumulate frequent flier miles, obtain discounts on new cars, and receive reduced-interest bank loans. ATM-debit cards are also at the stage of development where they may be more widely used. In the last few years, merchants have accelerated installation of debit card readers, and promoters are focusing increased attention on marketing and consumer education. Thus, for debit cards, development of a rational pricing scheme may be the only remaining barrier to growth.

Over a medium-term horizon, I think we are likely to see increased use of ACH direct debit by consumers replacing recurring payments that are now made by check. For this to happen, however, we will need both increased consumer education and greater business participation. In the medium term, we are also likely to see the development of an ACH system enhanced to permit electronic data interchange as the result of the joint efforts of the Federal Reserve and the private sector. Once such a system is in widespread use, businesses will be able to reduce the volume of checks written to other businesses.

Finally, over a still longer time horizon, we may see the advent of electronic money, as *smart cards* and *electronic purses* begin to replace cash for smaller transactions. Some industry observers might view this timetable as a pessimistic outlook for the success of electronic money in the United States. I would respond, however, that there are still significant barriers to be overcome. In the United States, we have not yet developed a proven, cost-effective technology for electronic money, nor have we achieved the industry standardization necessary to produce merchant acceptance. Once these barriers are overcome, we still have to resolve the pricing problem and consumer acceptance of electronic money before we see a significant impact on the use of cash.

POLICY ISSUES IN A CASHLESS SOCIETY

My final comments tonight address some of the policy concerns that are raised as payments systems

evolve toward a cashless society. I believe there are significant issues raised with regard to payments system risk, the consumer, and monetary policy that are relevant not only in the United States but in other countries as well.

Under payments system risk, one important question raised by the move to a cashless society is who should operate and who should have access to the payments system. While there is a natural tendency among both bankers and central bankers to want to maintain control of the payments system, I think it may be increasingly difficult to do so in the face of new technology. Certainly, it may be possible to develop a regulatory framework that keeps some developments, such as the "electronic purse" within the banking system. However, consider the possibility that, in the future, both business and retail transactions may be carried out over computer networks which employ an electronic medium of exchange and in which settlement occurs on the books of a nonbank entity. Whether and how this system should be regulated and what linkages should be permitted to traditional payments systems are very difficult questions to answer.

New payments systems also raise a number of important consumer issues. In the United States, the Federal Reserve has general responsibility for developing regulations regarding electronic payments. We have already developed regulations outlining the rights and responsibilities of participants in credit card and ATM-debit systems, and we are currently examining prepaid cards. Other important consumer issues in the future are the right of access to the payments system for those who do not have a bank account and the right to individual privacy in a world of electronic money.

Finally, as a central banker, I think that we need to be aware of the monetary policy implications of an electronic payments system. As we move from a world of cash and paper, I believe we are likely to see an erosion of the linkages between our traditional measures of money and transactions in the real economy. In the short run, these changes may take the form of velocity shifts that reduce the stability of our money demand relationships. Over a longer time horizon, the advent of a cashless, paperless payments system raises the more fundamental issues of how we define money and how we conduct monetary policy.

CONCLUSION

Let me conclude my remarks this evening with a final observation about the central bank's role in the development of the payments system. My message tonight is that payments system changes tend to be evolutionary, not revolutionary. Over the next decade, I think that we will continue to see progress toward a cashless/paperless society, both in the United States and elsewhere. In the presence of these trends, I strongly believe that our responsibility as central bankers is not to resist or inhibit these changes. To do so raises the risk we will be left behind and will lose our ability to constructively shape the future. Rather, I believe that our strategy must be to anticipate payments system change and to channel it in such a way as to ensure the safety and efficiency of our domestic and international financial systems.